

embodiment, the hinged connection between interface housing 150 and display housing 160 may include detents such that display housing 160 may be held at a plurality of discrete relative angles relative to interface housing 150 (see, e.g., FIG. 3B). Providing detents allows a user to have the choice of a plurality of viewing angles when display module 10 is coupled to handheld computer 100. In an alternative embodiment, the hinged or rotatable connection between display housing 160 and interface housing 150 may be configured to allow tilting of display housing 160 either forward or backward from the position depicted in FIG. 1. Such forward or backward bending helps to absorb shock if display module 10 were to receive an impact (dropped, etc.) and may further protect the hardware of handheld computer 100 adjacent slot 130.

[0041] Referring to FIGs. 4A-4B, display module 10 may be connectable to wearable host devices, such as wrist band 200. In a preferred embodiment, display module 10 may be secured within an interface cavity 210 (see FIG. 4B) such that the surface of display housing 160 may be flush with the surrounding surface of the wrist band, forming a protective pocket. In another embodiment, display module electrical interconnects 180 make contact with interconnects provided in the wrist band to permit data and energy transfer between devices, if the host device wrist band 200 includes, for example, integrated memory, batteries or solar cells. Display module 10 can couple to wrist band 200 only when interface housing 150 is fully folded behind display housing 160. A user can insert or remove display module 10 from interface cavity 210 of wrist band 200 as needed.

[0042] Referring to FIG. 5, display module 10 may be connectable to handheld host devices, such as, but not limited to mobile telephone 300. In an exemplary embodiment, display module 10 may be

secured within an interface cavity 310 such that the surface of display housing 160 may be flush with the surrounding surface of mobile phone 300, forming a protective pocket. In another embodiment, electrical interconnects 180 of display module 10 make contact with electrical interconnects 320 provided in mobile telephone 300 to permit data and energy transfer between the devices. Display module 10 can couple to mobile telephone 300 only when fully folded. A user can insert or remove display module 10 from interface cavity 310 of mobile telephone 300 as needed.

[0043] Referring to the present invention generally, display housing 160 and interface housing 150 contain at least non-volatile memory (NVM) and display driver circuitry. In another embodiment, display module 10 further contains typical electronic elements that are well known in the art pertaining to handheld computers, including, but not limited to, the following: power sources, processing capability, program memory, input features, output features, backlighting. Power sources may include batteries or energy storage elements, and associated power conditioning circuits. Processing capability can include ASICs, microcontrollers, microprocessors, or other functional circuitry capable of processing information or controlling circuit operations. Program memory can provide a processing element with the ability to execute flexible functional behavior. Input features can include, for example, a touch screen capability of display screen 170, buttons, dials, IR receivers, and electro-audio transducers. Exemplary output features that the accessory display module can incorporate include electro-audio transducers, buzzers, IR transmitters, or indicator lights. A backlighting capability extends display viewability to include a wide range of ambient lighting conditions. Thus, the present invention is configured to incorporate

a range of functional capabilities within display housing 160 and interface housing 150.

[0044] In an exemplary embodiment, a variety of host devices can utilize display module 10 as an accessory device, including, but not limited to, the following: e-books, games, toys, projectors such as those sold under the trademark INFOCUS, MP3 players, cameras, key fob or pendant, home control, car control, remote control, pedometer or digital sport assistant, device configuration resource, mobile telephones, watches, notebook computers, palmtop computers, integrated automotive computers, and the like, without departing from the scope of the invention. Further, a display module may be used as a stand-alone device. For example, the display module can display information, such as, but not limited to, the local time and date, when not coupled to any electronic device or when worn as a watch on a wristband configured to receive the folded display module.

[0045] Numerous example applications for display module 10 can be recited beyond the basic use as an accessory for a handheld computer. Used in e-book applications, display module 10 can function as a bookmark, companion device, auxiliary display, or a tutorial aid to enable the user to learn, for example, new words. For game players, display module 10 can store favorites and preferences, act as an opponent or companion, serve as a portable gaming platform, or provide a convenient Tamagouchi-style game experience. With regard to toys, display module 10 can interface to inexpensive electronic toys and provide a programming capability that includes a display. Display module 10 can further control a projector system, such as those sold under the trademark INFOCUS, or provide memory and display as well as remote viewing capability for cameras. When used with an MP3 player system, the display module may